

Remarks/Arguments:

Claims 1-21 are pending in this application and stand rejected. Applicants have amended claims 1, 5, and 20.

Claims 1-10 and 13-20 stand rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Patent No. 6,912,847 ("Deeba"). Claims 1-10 and 13-20 stand rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,709,722 ("Nagai"). Claims 11, 12 and 21 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Deeba in view of design choice. Applicant respectfully submits that the currently pending amended claims are patentable over the prior art of record for at least the reasons set forth below.

Features of Independent Claim 1

Applicant's invention, as recited by amended independent claim 1, includes the following features which are neither disclosed nor suggested by the art of record, namely:

a soot filter packed with a mass of elongate, flat, narrow strip metal wherein ***said mass is compressed to provide a first packing density*** and a catalyst . . . supported on ***a metal substrate of the type used in the filter having a second packing density lower than said first packing density***, to permit passage of soot particles. (emphasis added).

Applicant's invention as claimed in claim 1 is directed to an exhaust system for a lean-burn internal combustion engine comprising a soot filter. The soot filter is packed with a mass of elongate, flat, narrow strip metal wherein the metal is compressed to provide a first packing density. In an exemplary embodiment, the mass is knitted 310 stainless steel flattened wire at a packing density of 12% volume by volume (v/v). The catalyst upstream of the filter is supported on a metal substrate of the type used in the filter but having a second packing density lower than the first packing density. In an exemplary embodiment, the metal substrate supporting the catalyst has a packing density of 6% solid by volume. Support for amended independent claim 1 can be found, for example, in the originally filed specification at page 7, lines 1-7. No new matter has been added.

Response to Rejection of Independent Claim 1 - based on Deeba

The Office Action rejects independent claim 1 as anticipated by Deeba. The Office Action asserts that Deeba discloses an exhaust system as claimed including a soot filter packed with a mass of elongate, flat, narrow strip metal. The Office Action cites to col. 8, lines 11-50 of

Deeba, which discloses soot filters made of metal wire mesh structures, to support its anticipation rejection. Contrary to the Office Action's assertion, however, there is no teaching, disclosure or suggestion in Deeba of the features of "a soot filter packed with a mass of elongate, flat, narrow strip metal." Notwithstanding this lack of disclosure, Applicant contends that Deeba further fails to teach, disclose, or suggest the feature that "said mass is compressed to provide a first packing density . . . and a catalyst supported on a metal substrate of the type used in the filter having a second packing density lower than the first packing density."

As cited by the Office Action, Deeba discloses an exhaust system containing a soot filter to trap particulate matter and prevent the material from venting directly to the atmosphere. Further, Deeba teaches that "[s]oot filters can be, for example, metal wire mesh structures formed, for example, from stainless steel." (col. 8, lines 13-16). Applicant submits that Deeba does not define or further describe the *metal wire mesh structures*, or give other examples for its filters (other than ceramic wallflow filters). Without further description by Deeba, Applicant submits that the terms should be construed according to their ordinary meaning, *i.e.*, "mesh" is "a woven, knit, or knotted material of open texture with evenly spaced holes." (Webster's New Collegiate Dictionary, page 714, 2b (copyright 1980)). Furthermore, as disclosed in Deeba, the mesh is made from metal "wire," which is "metal in the form of a usually very flexible thread or slender rod." (Webster's New Collegiate Dictionary, page 1335, 1a (copyright 1980)). A copy of these definitions is enclosed for the Examiner's convenience.

Therefore, Applicant contends that the wire mesh filter disclosed in Deeba be construed to mean metal threads, or rods, according to the ordinary meaning of the terms. Thus, the metal threads or rods that make up the wire mesh structures in Deeba have a circular cross section.

In contrast, Applicant's claimed soot filter is comprised of a mass of elongate, *flat*, narrow strip metal and is therefore different than the rods or threads disclosed in Deeba, which have a circular cross-section. As defined in Applicant's specification, elongate means "relative to the width of the flat strip metal. The term narrow is to be interpreted accordingly." (Specification, page 1). Thus, the strip metal, as claimed in claim 1, is elongate, *i.e.* relative to the width of the flat strip metal. Thus, Applicant contends that the claimed *mass of elongate, flat, narrow strip metal* is different from Deeba's *metal wire mesh structures*. Moreover, Deeba does not disclose structures that are packed, or compressed, into a state to provide a first packing density as the claimed *mass of strip metal* claimed in claim 1. In addition, Deeba also fails to disclose a catalyst supported on a metal substrate of the type used in the filter having a

second packing density lower than the first packing density so as to permit passage of soot particles.

For all of these reasons, Applicant contends, therefore, that Deeba does not anticipate Applicant's claimed invention.

Response to Rejections - based on Nagai

The Office Action rejects independent claim 1 as anticipated by Nagai. The Office Action asserts that Nagai discloses the exhaust system as claimed, including a soot filter packed with a mass of elongate, flat, narrow strip metal. Applicant disagrees with the Office Action's characterization of Nagai and asserts that Nagai does not teach or suggest this feature.

Nagai discloses that its filter element "comprises a plurality of flat filters 5 arranged in parallel, end plates 6 . . ." (col. 7, lines 11-12). The filters, according to Nagai, are separated by spaces and include "three-dimensionally reticulated porous members . . . having holes communicating with one another." (col. 7, lines 37-39). In contradistinction to Nagai, the claimed packed mass is structurally different from the regular stacked plates of Nagai. For example, a mass of elongate, flat, narrow strip metal compressed to a first packing density is different from a filter constructed of stacked plates. Similarly, Nagai, as an alternative to stacked plates, discloses filter elements having untapered, column-shaped, or cylindrical filters 8. (see col. 7, lines 19 and 20). Applicant submits that such cylinders would not be analogous to Applicant's claimed filters at least because they are not comprised of a mass of elongate, flat, narrow strip metal. Moreover, Nagai does not disclose structures that are packed, or compressed, into a state to provide a first packing density as the claimed mass of elongate, flat, narrow strip metal claimed in claim 1. In addition, Nagai also fails to disclose a catalyst supported on a metal substrate of the type used in the filter having a *second* packing density lower than the first packing density so as to permit passage of soot particles.

Therefore, for at least these reasons, Applicant contends that claim 1 is not anticipated by Nagai.

Conclusion

Applicant contends that claim 1 is patentable over the prior art of record for the reasons set forth above. Claims 2-21 include all of the features of claim 1 from which they depend. Accordingly, claims 2-21 are also patentable over the art of record for at least the reasons that claim 1 is patentable.

In view of the amendments and arguments set forth above, the above-identified application is in condition for allowance which action is respectfully requested.

Respectfully submitted,



Christopher R. Lewis, Reg. No. 36,201
James C. Abruzzo, Reg. No. 55,890
Attorneys for Applicant

Enclosure: Dictionary Definitions (4 pages)

JCA/Irb

Dated: January 17, 2007

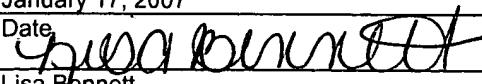
P.O. Box 980
Valley Forge, PA 19482-0980
(610) 407-0700

The Director is hereby authorized to charge or credit Deposit Account No. **18-0350** for any additional fees, or any underpayment or credit for overpayment in connection herewith.

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, with sufficient postage, in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on:

January 17, 2007

Date


Lisa Bennett